MATERIAL SAFETY DATA SHEET

SECTION I. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320SRM
Gaithersburg, Maryland 20899-2320

SRM Number: 3185
MSDS Number: 3185
Name: Nitrate Anion Standard Solution

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Material Name: Nitrate Anion Standard Solution

Description: This material consists of five 10 mL sealed borosilicate glass ampoules of a single component solution at a nominal concentration of 1 000 mg/kg nitrate dissolved in filtered (0.22 μm) 18 MΩ water. High purity sodium nitrate was used in the preparation.

Other Designations: **Sodium Nitrate** [nitratine; sodium niter; chile saltpeter; cubic niter; sodium (I) nitrate; sodium (+1) nitrate; nitric acid, sodium salt; niter; nitric acid, sodium salt (1:1); soda niter]

Name	Chemical Formula	CAS Registry Number
Sodium Nitrate	$NaNO_3$	7631-99-4

DOT Classification: Solution is not regulated by DOT.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration (mass %)	Exposure Limits and Toxicity Data
Sodium Nitrate (solid state)	0.1	No occupational limits established
		Human, Woman, Oral TD_{Lo}: 14 mg/kg
		Rat, Oral LD_{50}: 1 267 mg/kg
		Rat, Intraperitoneal LD: > 181 mg/kg
		Mouse, Intravenous LD_{50}: 175 mg/kg
		Rat, Continuous Oral TD_{Lo}: 118 g/kg/39 weeks

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Sodium Nitrate	
Appearance and Odor: Colorless to white crystals or powder. Odorless.	**Vapor Pressure:** Not applicable.
Relative Molecular Weight: 84.99	**Vapor Density:** Not applicable.
Specific Gravity (Water = 1): 2.261	**pH:** Neutral in solution.
Boiling Point: Not applicable.	**Water Solubility:** 92.1 % @ 25 °C
Melting Point: 307 °C	**Solvent Solubility:** Soluble in alcohol, methanol, ammonia. Slightly soluble in glycerol. Very slightly soluble in acetone.

NOTE: The physical and chemical data provided are for the pure crystalline form of sodium nitrate.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Fire and Explosion Hazards: This material, SRM 3185, is a negligible fire hazard.

Extinguishing Media: Water or media suitable for surrounding fire.

Fire Fighting: Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point: Not applicable. **Method Used:** Not applicable. **Autoignition Temperature:** Not applicable.

Flammability Limits in Air (Volume %): **UPPER:** Not applicable.
LOWER: Not applicable.

SECTION V. REACTIVITY DATA

Stability: **_X_ Stable** **___ Unstable**

Conditions to Avoid: None reported.

Incompatibility (Materials to Avoid): The solid form of sodium nitrate is incompatible with acids, metal oxides, metals, metal salts, combustible materials, cyanides, and reducing agents. The water solution form of SRM 3185 is not combustible.

Hazardous Decomposition or Byproducts: Thermal decomposition of the solid form of sodium nitrate can produce oxides of nitrogen and sodium.

Hazardous Polymerization: **___ Will Occur** **_X_ Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **_X_ Inhalation** **_X_ Skin** **_X_ Ingestion**

Health Hazards (Acute and Chronic): Sodium nitrate may be irritating on contact with eyes, skin, and mucous membranes. May be harmful if swallowed. Ingestion may cause abdominal spasms, faintness, and muscular spasms. Nitrates may also produce gastrointestinal irritation, bloody diarrhea, hematuria, catharsis, diuresis, albuminuria, and oliguria.

Major Health Hazards: No significant target effects reported.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: If sodium nitrate dust is inhaled, move the victim to fresh air. Give artificial respiration by qualified personnel if the victim is not breathing, and get immediate medical attention.

Skin Contact: Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Obtain medical attention, if needed.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes. Obtain immediate medical assistance.

Ingestion: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Obtain medical attention immediately.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Absorb spilled liquid with sand. Collect spilled material in an appropriate container for disposal. For the solid form of sodium nitrate, avoid contact with combustible materials.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Keep material separated from incompatible substances. Handle in accordance with all current regulations and standards.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Sodium Nitrate*, 18 September 2003.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was carefully prepared, using current references; however, NIST does not certify the data on the MSDS. The certified value for this material is given in the NIST Certificate of Analysis.